

## MANHOLE/CLEAN OUTS

### ITEM 2000

#### PART 1 - GENERAL

WORK INCLUDED: (Sec. 01) Furnish and install Manholes and drop attachments as indicated on the Drawings and specified.

RELATED WORK: (Sec. 02) Furnished/paid for in this Item:

- Earth Excavation/Backfill
- Foundation Cushion
- Granular Backfill
- Concrete
- Bulk Concrete
- Steel Reinforcement
- Chimney Seals

Furnished/paid for in respective Item: (as applicable)

- Rock Excavation and Backfill

QUALITY ASSURANCE: (Sec. 03) Materials shall be new and of the best quality.

REFERENCES: (Sec.04)

- ASTM - American Society for Testing and Materials

SUBMITTALS: (Sec. 05) Shop Drawings for manhole, frame, cover, steps.

MEASUREMENT/PAYMENT: (Sec. 06) Measurement for manholes will be the linear feet of manhole depth installed made from the invert of the outlet pipe, or riser tee section, vertically to the top of the manhole cover. Include riser tee sections and supporting concrete with manhole.

Measurement for drop attachments will be made from the invert of the inlet pipe at the top of the drop attachment to the invert of the outlet pipe of the manhole.

Measurement for Clean Outs will be for each complete installation.

Measure for payment upon final completion and acceptance, after any adjustments have been made.

WARRANTY: (Sec. 07) See General Conditions.

#### PART 2 - PRODUCTS

MATERIALS: (Sec. 08)

Manhole - Precast, reinforced concrete, ASTM C-478, with eccentric cone sections. Concrete compressive strength  $f' c = 5000$  psi.

Frame-Cover Cast Iron – frames and covers for sanitary sewer and storm drain manholes shall be the Village of Canal Winchester Standard R-1762 with the embossed seal on the lid, or R-1916-C if required.

Steps - Aluminum, 6061-T6 alloy, ASTM B-221 or Steel Reinforced Polypropylene, style indicated on Drawings.

Adjusting Rings – High density polyethylene (H.D.P.E.) by Ladteeh Inc. or equal. Adjusting rings to be sealed as recommended by the manufacturer.

Joint Gaskets – Flexible rubber, ASTM C-443 (Sanitary Manholes Only).

Resilient Connectors - ASTM C-923, for positive seal between connector and manhole wall and between connector and pipe.

Concrete - Poured in Place.

Bulk Concrete - Concrete Collars, in paved areas

Chimney Seals – All sanitary manholes

Butyl Sealant - Flexible Butyl Resin Sealant ASTM C-990 by ConSeal or equal.

Test Pipe - 1/2 inch diameter PVC, ASTM D-1785, Schedule 80, with cap. (Sanitary manholes only).

Foundation Cushion - Item 160.

#### MANHOLE TYPES: (Sec.09)

Standard: Construct standard manholes of the size indicated on the Drawings, similar to standard manholes, except that, in order to obtain all possible headroom, place a reinforced concrete slab instead of cone section on top.

Shallow: Construct shallow manholes as indicated on the Drawings, similar to standard manholes, except that, in order to obtain all possible headroom, place a reinforced concrete slab instead of cone section on top.

Riser Tee: Construct riser tee manholes as indicated on the Drawings, similar to standard manholes, except that, precast concrete riser tee sections, supported with bulk concrete, shall be used for the base.

Drop Attachments: Construct drop attachments of pipe encased in concrete and of the size indicated on the Drawings. The tee at the upper end of the drop pie shall have the same diameter as the incoming pipe unless indicated otherwise. The tee, the drop pipe, and the 90 degree ell, and the encasing concrete are considered a part of the drop attachment.

#### CLEAN OUTS: (Sec. 10)

PVC Pressure Pipe

Concrete Class C  
Manhole frame and cover Neenah R-1762 or equal

### PART 3 - EXECUTION

INSPECTION: (Sec. 11) Inspect site and determine conditions that may effect the proper execution of the work.

PREPARATION: (Sec.12) Clear site as required for the proper performance of the work.

INSTALLATION: (Sec.13) Perform all earth excavation, to the limits indicated on the Drawings, for the proper installation of the manhole. Install manhole sections on precast concrete manhole base placed on six inch thickness of Foundation Cushion or poured-in-place monolithic concrete base, or, if specified and/or indicated on Drawing, precast manhole tee sections.

Install true and plumb.

Sanitary Manholes: Make all joints with gaskets; pipe connections with resilient connectors. Joints and pipe connections shall be watertight.

Channel manhole bottom to depth indicated on the Drawings and to width equal to diameter of pipe. Provide smooth, clear, flow lines of formed concrete or pipe sections.

Install test pipe, approximately twelve inches long, through manhole wall above one of the pipes entering the manhole, as indicated on Drawings, for measuring ground water head. Securely pre cast or grouted in place with capped end inside manhole. (Sanitary manholes only).

Openings for pipes 18 inches and smaller entering above the top of the outlet pipe (drop attachments) may be cut in the field. Connect pipes over 18 inches in diameter entering the manhole above the top of the outlet pipe by a tee connection, precast with the barrel of the manhole.

Adjust frame and cover to proper elevation with precast concrete rings. Final rim elevations of manholes shall be determined in the field at time of construction.

Set casting in grout, or use sealant strips as indicated on the drawings and specifications.

Install steps wherever indicated on the Drawings, cast or grouted in place at a uniform spacing of not over 16 inches center to center. Add a non-shrinking agent to the grout.

Support precast manhole tee sections with concrete as indicated on the Drawings.

CLEAN-UP (Sec. 14) Upon completion of work, remove excess materials, debris, etc. off site. Put site in neat, orderly conditions.